

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS

Applicant(s)	Pham	<u>APPEAL BRIEF</u>
Serial No.	10/624,165	
Filing Date	7/21/2003	
Group Art Unit	2195	
Examiner Name	To, Jennifer N.	
Confirmation No.	6359	
Attorney Docket No.	100.554US01	
Title: PERIODIC EVENT EXECUTION CONTROL MECHANISM		

1. Introduction

On January 28, 2008, Appellant filed a notice of appeal from the final rejection of claims 1-23 set forth in the Final Office Action mailed October 10, 2007. This Appeal Brief is accompanied by a fee in the amount of \$510.00 as required under 37 C.F.R. §41.20(b)(2).

2. Real Party in Interest

The real party in interest in the above-captioned application is the assignee, ADC DSL Systems, Inc.

3. Related Appeals and Interferences

There are no appeals or interferences known to Appellant which will have a bearing on the Board's decision in the present appeal.

4. Status of the Claims

Claims 1-23 are pending in the application.

In the Final Office Action,

- (a) Claims 1-8 were finally rejected under 35 USC § 102(e); and
- (b) Claims 9-23 were finally rejected under 35 USC § 103(a).

These final rejections of claims 1-23 are the subject of this appeal.

5. Status of Amendments

In an Amendment After Final dated December 28, 2007, Appellant requested that claim 5 being amended to address an objection to claim 5 set forth in the Final Office Action. In the Advisory Action mailed on January 17, 2008, the Examiner entered that amendment to claim 5.

6. Summary of Claimed Subject Matter

Pursuant to 37 C.F.R. §41.37(c)(1)(v), Appellant provides the following concise explanation of the subject matter defined in each independent claim with reference to the specification by page and line number and to the drawings by reference number. Appellant submits that the citations to the specification and drawings are not intended to be exhaustive and that other support for the various claims may also be found throughout the specification and drawings.

A. Claim 1

Claim 1 is directed to a method of scheduling a plurality of periodic events. (*See, e.g.,* FIG. 2 and page 6, lines 1 – 25). Each periodic event has an associated periodic interval of time and an associated set of services. (*See, e.g.,* page 6, lines 5 – 15). The method includes determining when one of the plurality of periodic events occurs. (*See, e.g.,* page 6, lines 4 – 15 and block 202 of FIG. 2). The method also includes distributing the execution of the services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event. (*See, e.g.,* page 6, lines 16 – 25 and blocks 204 – 206 of FIG. 2).

B. Claim 9

Claim 9 is directed to a system that has a periodic event scheduler. (*See, e.g.,* periodic event scheduler 106 of FIG. 1; page 4, lines 26 – 28). The periodic event scheduler schedules a plurality of periodic events, wherein each periodic event has an associated periodic interval of time and an associated set of services. (*See, e.g.,* page 6, lines 5 – 15). The system also includes a tick generator that generates interrupts in response to clock ticks. (*See, e.g.,* tick generator 102 of FIG. 1; page 4, lines 21 – 26). The system also includes an interrupt handler that receives the interrupts from the tick generator and executes the periodic event scheduler in response to the

interrupt. (*See, e.g.*, tick generator 102 of FIG. 1; page 4, lines 26 – 28). The periodic event scheduler determines when one of the plurality of periodic events occurs. (*See, e.g.*, page 6, lines 4 – 15). The periodic event scheduler distributes the execution of the services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event. (*See, e.g.*, page 6, lines 16 – 25).

C. Claim 17

Claim 17 is directed to a telecommunication device. (*See, e.g.*, FIG. 6). The device includes an interface that couples the telecommunication device to a communication medium. (*See, e.g.*, interface 604 and page 14, line 23 – 27). The device includes a tick generator that generates interrupts in response to clock ticks. (*See, e.g.*, clock 625 of FIG. 6; page 15, lines 19 – 24). The device includes control logic coupled to the interface that determines when one of a plurality of periodic events occurs. (*See, e.g.*, control logic 622 of FIG. 6; page 16, line 21 – page 17, line 6 and page 6, lines 4 – 15). Each periodic event has an associated periodic interval of time and an associated set of services. (*See, e.g.*, page 6, lines 5 – 15). The control logic distributes the execution of the services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event. (*See, e.g.*, page 6, lines 16 – 25).

7. Grounds of Rejection to be Reviewed on Appeal

The first issue presented in this Appeal is whether the Examiner erred in rejecting claims 1-8 under 35 USC § 102(e) as being anticipated by Vargas et al. (U.S. Patent No. 6,918,115).

The second issue presented in this Appeal is whether the Examiner erred in rejecting claims 9-23 under 35 USC § 103(a) as being unpatentable over Vargas in view of Applicant Admitted As Prior Art (AAPA) (specification, pgs. 1-2).

8. Arguments

A. Rejection of claims under 35 USC § 102(e).

i. The Applicable Law

35 U.S.C. § 102 provides in relevant part:

A person shall be entitled to a patent unless-

(e) the invention was described in - (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language,

A claim is anticipated under 35 U.S.C. § 102 only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051,1053 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the...claim.” *Richardson v. Suzuki Motor Co.* 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but identical terminology is not required. *In re Bond*, 910 F. 2d 831, 15 USPQ 2d 1566 (Fed. Cir. 1990).

Anticipation focuses on whether a claim reads on a product or process disclosed in a prior art reference, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983). To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter. *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 37 USPQ 2d 1618 (Fed Cir. 1996).

ii. Rejection of claims 1-8

Claims 1-8 were rejected under 35 USC § 102(e) as being anticipated by Vargas et al. (U.S. Patent No. 6,918,115).

Applicant respectfully submits that the Examiner erred in making this rejection.

Claim 1 of the present application recites, in part, “determining when one of the plurality of periodic events occurs; and distributing the execution of the services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event”.

It is respectfully submitted that Vargas fails to teach the underlined language set forth above. In the Final Office Action, the Examiner took the position that Vargas teaches this feature at column 9, lines 5-10. Final Office Action, page 3. The cited portion of Vargas (and surrounding context) states the following:

At the scheduled time, in step 312, the scheduler executes the predefined periodic process(es), action(s), or event(s) for the current entry. In the example, the first action identifier is for Process A, and the scheduler may execute whatever periodic event is to occur for Process A. If the current entry contained more than one action identifier, then it may execute more than one corresponding periodic event. Predefined periodic processes, actions, and events may be any predefined activity, including sending a synchronization signal, executing a corrective process, waking another process, etc.

Vargas, column 9, lines 5-15. This portion of Vargas is completely silent as to “distributing the execution of the services associated with that periodic event *throughout* a next periodic interval of time associated with that periodic event following the occurrence of that periodic event” as recited in claim 1 of the present application. Vargas clearly indicates that the execution of such services be consolidated together at the beginning of each period. Indeed, to some extent Vargas teaches away from this claimed feature of claim 1 in that Vargas clearly indicates that, to the extent that there are scheduled processes having different periods, the scheduler should attempt to schedule those processes to be executed together at the beginning of the period in order to bunch up (“synchronize” or “consolidate”) the execution of processes so as to increase the amount of time in which no such processes are executed, which enables the hardware to enter a power-saving mode for a longer period of time. See, e.g., Vargas, column FIGS. 5A-5B, column 18, lines 39-57. This is clearly different from “distributing the execution of the services associated with that periodic event *throughout* a next periodic interval of time associated with that periodic event following the occurrence of that periodic event” as recited in claim 1 of the present application.

In the Advisory Action mailed on January 17, 2008, the Examiner responded to Applicant’s argument with the following:

Examiner respectfully disagreed [sic] with applicant. Vargas teaches the scheduler executed all actions (services) associated with process A (periodic event), then the scheduler determined whether it is the last entry before loop back to the initial start to see if it is

time to execute the executed period event (fig. 3A; col. 8, line 59 through col. 9, line 20). Thus Vargas teaches next period time interval when the current time equal to Process A periodic start time, the scheduler then execute Process A actions (all the service associated with process A) the second time. Therefore, Vargas clearly teaches distributing the execution of the services associated with that periodic event throughout a next period interval of time associated with that periodic event following the occurrence of that periodic event.

Advisory Action, Continuation Sheet. It seems that all the Examiner is saying in the first three sentences set forth above is that all the processes associated with a given periodic event are executed during the next period. However, nowhere does the Examiner explain how this teaches “*distributing* the execution of the services associated with that periodic event *throughout* a next periodic interval of time associated with that periodic event following the occurrence of that periodic event”.

In the Advisory Action mailed on January 17, 2008, the Examiner also responded to Applicant’s argument with the following:

Applicant further argued that Vargas teaches the scheduler schedule those processes to be executed together (parallel) not one after another as claimed.

Examiner respectfully disagreed with applicant. Vargas teaches the scheduler scheduling all actions associated with process A then process B (col. 8, lines 17-58). There are more than one ways the scheduler could use to schedule the processes (i.e. parallel, or sequence). Thus in order for the scheduler to perform the scheduling step, it has to use either parallel or sequence. Vargas did not clearly state which way Vargas used. However since the claim language did not refer as to distribute in sequence or in parallel, Vargas therefore teaches the claimed limitation..

Advisory Action, Continuation Sheet.

The Examiner is mischaracterizing Applicant’s argument. Applicant is not arguing that Vargas teaches scheduling the processes to be executed in parallel. Instead, Applicant is arguing that Vargas teaches that the execution of the processes associated with a given periodic event is “bunched” at the beginning of the next period so that the execution of the processes occurs at the beginning. This is clearly shown in FIG. 5B of Vargas. Vargas indicates that this is done to increase the amount of time in which no such processes are executed, which enables the

hardware to enter a power-saving mode for a longer period of time. See, e.g., Vargas, column FIGS. 5A-5B, column 18, lines 39-57. Bunching the execution of the processes at the beginning of each period is totally different from “distributing the execution … throughout” the period as recited in claim 1. It is noted that the word “throughout” is defined by Merriam-Webster.com (accessed on March 20, 2008) as “1 : all the way from one end to the other of : in or to every part of <cities *throughout* the United States> 2 : during the whole course or period of <troubled her *throughout* her life>”. The argument Applicant is making in this regard has nothing to do with whether the execution occurs in parallel or in serial.

Claims 2-8 all depend from claim 1, and, therefore, at least those arguments set forth above with respect to claim 1 apply these claims as well.

Accordingly, it is respectfully submitted that the Examiner erred in rejecting claims 1-8 under 35 USC § 102(e) as being anticipated by Vargas. Reversal of the rejection of claims 1-8 is respectfully requested.

B. Rejection of claims under 35 U.S.C. §103(a)**i. The Applicable Law**

35 U.S.C. § 103 provides in relevant part:

Conditions for patentability, non-obvious subject matter.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

“The ultimate determination...whether an invention is or not obvious is a legal conclusion based on underlying factual inquiries including (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) the objective evidence of nonobviousness.” *In re Dembiczaik*, 175 F.3d 994, 998, 50 USPQ2d 1614, 1616 (1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966)).

When applying 35 U.S.C. § 103(a), the claimed invention must be considered as a whole;

the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; the references must be viewed without the benefit of impermissible hindsight afforded by the claimed invention and a reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

ii. Rejection of claims 9-23

Claims 9-23 were rejected under 35 USC § 103(a) as being unpatentable over Vargas in view of Applicant Admitted As Prior Art (AAPA) (specification, pgs. 1-2).

Since the Examiner used similar reasoning to reject independent claim 9 as was used to reject claim 1, Applicant respectfully submits that at least the arguments set forth above with respect to claim 1 apply to claim 9 as well.

Claims 10-16 all depend from claim 9 and therefore at least those arguments set forth above with respect to claim 9 apply these claims as well.

Since the Examiner used similar reasoning to reject independent claim 17 as was used to reject claim 1, Applicant respectfully submits that at least the arguments set forth above with respect to claim 1 apply to claim 17 as well.

Claims 18-23 all depend from claim 17 and therefore at least those arguments set forth above with respect to claim 17 apply these claims as well.

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Attorney Docket No. 100.554US01

Title: PERIODIC EVENT EXECUTION CONTROL MECHANISM

Accordingly, it is respectfully requested that the Examiner erred in rejecting claims 9-23 under 35 USC § 103(a) as being unpatentable over Vargas in view of Applicant Admitted As Prior Art. Reversal of the rejection of claims 9-23 is respectfully requested.

Respectfully submitted,

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CLAIMS APPENDIX

1. A method of scheduling a plurality of periodic events, wherein each periodic event has an associated periodic interval of time and an associated set of services, the method comprising:
 - determining when one of the plurality of periodic events occurs; and
 - distributing the execution of the services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event.
2. The method of claim 1, wherein one of the periodic events occurs when a periodic interval of time associated with that periodic event elapses.
3. The method of claim 1, wherein distributing the execution of the services includes executing successive services on successive clock ticks following a clock tick on which that periodic event occurred.
4. The method of claim 1, wherein the execution of each of the services is either enabled or disabled.
5. The method of claim 4, wherein the execution of each of the services is enabled or disabled in order to implement one of a one-shot mode, a burst mode, and a continuous mode of service execution.
6. The method of claim 4, further comprising determining, for each of the set of services associated with that periodic event, if that service is enabled for execution.
7. The method of claim 6, wherein distributing the execution of the services associated with that periodic event during the next periodic interval of time includes distributing the execution of the enabled services associated with that periodic event during the next periodic interval of time associated with that periodic event following the occurrence of that periodic event.

8. The method of claim 7, wherein distributing the execution of the enabled services includes executing successive enabled services on successive clock ticks following the clock tick on which that periodic event occurred.

9. A system comprising:

 a periodic event scheduler that schedules a plurality of periodic events, wherein each periodic event has an associated periodic interval of time and an associated set of services;

 a tick generator that generates interrupts in response to clock ticks; and

 an interrupt handler that receives the interrupts from the tick generator and executes the periodic event scheduler in response to the interrupt;

 wherein the periodic event scheduler:

 determines when one of the plurality of periodic events occurs; and

 distributes the execution of the services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event.

10. The system of claim 9, wherein one of the periodic events occurs when a periodic interval of time associated with that periodic event elapses.

11. The system of claim 9, wherein the periodic event scheduler distributes the execution of the services by executing successive services on successive clock ticks following a clock tick on which that periodic event occurred.

12. The system of claim 9, wherein the execution of each of the services is either enabled or disabled.

13. The system of claim 12, wherein the execution of each of the services is enabled or disabled in order to implement one of a one-shot mode, a burst mode, and a continuous mode of service execution.

14. The system of claim 12, wherein the periodic event scheduler also determines, for each of

the set of services associated with that periodic event, if that service is enabled for execution.

15. The system of claim 14, wherein the periodic event scheduler distributes the execution of the services associated with that periodic event during the next periodic interval of time by distributing the execution of the enabled services associated with that periodic event during the next periodic interval of time associated with that periodic event following the occurrence of that periodic event.

16. The system of claim 15, wherein the periodic event scheduler distributes the execution of the enabled services by executing successive enabled services on successive clock ticks following the clock tick on which that periodic event occurred.

17. A telecommunication device comprising:

an interface that couples the telecommunication device to a communication medium;

a tick generator that generates interrupts in response to clock ticks; and

control logic coupled to the interface that:

determines when one of a plurality of periodic events occurs, wherein each periodic event has an associated periodic interval of time and an associated set of services; and

distributes the execution of the services associated with that periodic event throughout a next periodic interval of time associated with that periodic event following the occurrence of that periodic event.

18. The telecommunications device of claim 17, wherein one of the periodic events occurs when a periodic interval of time associated with that periodic event elapses.

19. The telecommunications device of claim 17, wherein the control logic distributes the execution of the services by executing successive services on successive clock ticks following a clock tick on which that periodic event occurred.

20. The telecommunications device of claim 17, wherein the execution of each of the services is either enabled or disabled.

21. The telecommunications device of claim 20, wherein the control logic also determines, for each of the set of services associated with that periodic event, if that service is enabled for execution.

22. The telecommunications device of claim 21, wherein the control logic distributes the execution of the services associated with that periodic event during the next periodic interval of time by distributing the execution of the enabled services associated with that periodic event during the next periodic interval of time associated with that periodic event following the occurrence of that periodic event.

23. The telecommunications device of claim 22, wherein the periodic event scheduler distributes the execution of the enabled services by executing successive enabled services on successive clock ticks following the clock tick on which that periodic event occurred.

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EVIDENCE APPENDIX

There is nothing to present in the Evidence Appendix.

RELATED PROCEEDINGS APPENDIX

There is nothing to present in the Related Proceedings Appendix.